



## STAFF REPORT INFORMATION ONLY

### Basement Flooding Investigation Environmental Assessment – Study Area 32 (Eastern Beaches)

<b>Date:</b>	February 9, 2011
<b>To:</b>	Toronto and East York Community Council
<b>From:</b>	Director, Water Infrastructure Management, Toronto Water
<b>Wards:</b>	Wards 29, 30, 31, and 32
<b>Reference Number:</b>	p:\2011\Cluster B\TW\te11003

#### **SUMMARY**

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This staff report provides an update to Toronto and East York Community Council on the progress of the Eastern Beaches Basement Flooding Investigation Environmental Assessment Study for Study Area 32, as requested by the Community Council at their meeting of December 10, 2010.

The Study is currently in Phase 2 of the Environmental Assessment process, which involves the identification and evaluation of alternative solutions to address surface and basement flooding problems in the Eastern Beaches area. A public open house is being planned for Spring 2011 to present and receive public input on the preferred solution. This will be followed by the preparation of the requisite Environmental Assessment Study Report which will be subject to a 30 day public review, and submission to the Ontario Ministry of the Environment. Concurrently, Toronto Water is also evaluating the feasibility of implementing various interim measures to help alleviate flooding in the near-term.

#### **FINANCIAL IMPACT**

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There is no financial impact from the receipt of this report.

## **DECISION HISTORY**

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The City of Toronto has experienced widespread surface and basement flooding during extreme storm events. In August 19, 2005, the City experienced a severe storm event that resulted in the flooding of many residential homes, erosion of ravines and watercourses, and damage to City's infrastructure such as roads, bridges, culverts and sewers. Toronto Water received over 4,200 basement flooding complaints, the majority of which occurred north of Highway 401, where the storm exceeded a 1 in 100 year event with over 150 mm of rainfall occurring over a three hour period.

In April 2006, City Council approved the Basement Flooding Work Plan requiring a comprehensive engineering review to be undertaken to address basement flooding in chronic basement flooding prone areas, across the City. The Work Plan focuses on preventing, to the highest economically viable degree possible, surface flooding and reducing the amount of stormwater entering all the storm, sanitary and combined sewer systems. Thirty-one (31) chronic basement flooding study areas across the City were identified for investigations and for development of flood mitigation plans. The noted staff report regarding the Basement Flooding Work Plan can be viewed at: <http://www.toronto.ca/legdocs/2006/agendas/committees/wks/wks060307/it025.pdf> ; and the corresponding Council Decision Document can be viewed at: <http://www.toronto.ca/legdocs/2006/agendas/council/cc060425/wks2rpt/cl016.pdf>

The Toronto and East York Community Council on December 10, 2010, deferred consideration of the applications for 66 to 76 Kippendavie Avenue under the Planning Act and requested the General Manager, Toronto Water, and the Executive Director, Technical Services to report to the February 16, 2011 meeting of the Toronto and East York Community Council on the Basement Flooding Environmental Assessment covering Wards 29, 30, 31 and 32, including maps, for consideration with the item related to 66-76 Kippendavie Avenue. The corresponding Community Council Decision Document can be viewed at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2011.TE2.1>

## **ISSUE BACKGROUND**

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During the summer of 2008, the Eastern Beaches area experienced a series of intense storms which resulted in the flooding of many streets and residential homes. As a result, the Eastern Beaches was added as Study Area 32 for flood mitigation investigation. In 2009, the Eastern Beaches Basement Flooding Investigation Environmental Assessment Study was initiated.

The study is being conducted as per the requirements of the Province of Ontario's Municipal Class Environmental Assessment (EA) Schedule 'B', which includes two phases: Phase 1 - identification of the problem or opportunity; and Phase 2 – the identification and evaluation of alternative solutions and the selection of a preferred solution. Upon completion of the two phases, a Notice of Completion is issued and the

study undergoes a 30-day public review. The environmental assessment process provides opportunities for the public and other stakeholders to provide input at key stages of the study.

The Eastern Beaches Basement Flooding Investigation Study area, presented in Attachment 1, is located east of the Don River and encompasses 2,340 hectares. It is approximately bounded by the Don River to the west, Victoria Park Avenue to the east, Danforth Avenue to the north, and Lakeshore Boulevard East and the Toronto Eastern Beaches to the south.

The environmental assessment study is examining the existing stormwater drainage, analyzing the combined and sanitary sewer systems, and undertaking a detailed evaluation of the causes of surface and basement flooding, and solutions to alleviate future flooding.

## **COMMENTS**

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Engineering Consultants have been hired by Toronto Water to undertake the technical work required for the environmental assessment study, including the evaluation of alternative solutions, and the selection of a preferred solution to alleviate flooding in the Eastern Beaches area.

Technical work completed to date includes field data collection and investigation, closed circuit television inspection and smoke/dye tests of the sewer infrastructure, soil and groundwater assessments, rain volume and flow data collection, inspection and analysis of shoreline storm outfalls; and the development and application of a computer hydraulic model to assess overland flow on streets and flows in the sanitary, combined and storm sewer systems under various storm conditions.

### Causes of Flooding in the Eastern Beaches

The study area is serviced mainly by combined sewers, with separated storm and sanitary sewer systems in some local areas. The combined and storm sewer systems in the study area were originally designed to convey stormwater from a one in two to a one in five year return design storm, and because the area was developed prior to the 1970's an overall major system (overland flow drainage system on the streets) was not provided.

Under normal rainfall conditions, the storm and sanitary sewer systems operate as designed, however under heavy storms, a number of factors contribute to flooding in the area including: sewer backups due to overloaded local sewers and trunk interceptors, ponding of surface runoff on the streets at low spots, surface water entering basements through below ground window wells and basement walk-outs, and backwater from storm outfalls as a result of high lake levels and outlets clogged by silt washed up along the shoreline.

Nine flooding area "clusters" have been identified across the study area, which are shown in Attachment 2.

More detail on the causes of flooding for each cluster is provided in the following links:

Cluster 1 – Kew Beach Avenue

[http://www.toronto.ca/involved/projects/basement\\_flooding/pdf/2010-09-29\\_sa32/2010-09-29\\_cluster\\_1\\_causes\\_of\\_flooding\\_and\\_potential\\_remedial\\_measures.pdf](http://www.toronto.ca/involved/projects/basement_flooding/pdf/2010-09-29_sa32/2010-09-29_cluster_1_causes_of_flooding_and_potential_remedial_measures.pdf)

Cluster 2 – Kerr Road and Highfield Road

[http://www.toronto.ca/involved/projects/basement\\_flooding/pdf/2010-09-29\\_sa32/2010-09-29\\_cluster\\_2\\_causes\\_of\\_flooding\\_and\\_potential\\_remedial\\_measures.pdf](http://www.toronto.ca/involved/projects/basement_flooding/pdf/2010-09-29_sa32/2010-09-29_cluster_2_causes_of_flooding_and_potential_remedial_measures.pdf)

Cluster 3 – Minto Street

[http://www.toronto.ca/involved/projects/basement\\_flooding/pdf/2010-09-29\\_sa32/2010-09-29\\_cluster\\_3\\_causes\\_of\\_flooding\\_and\\_potential\\_remedial\\_measures.pdf](http://www.toronto.ca/involved/projects/basement_flooding/pdf/2010-09-29_sa32/2010-09-29_cluster_3_causes_of_flooding_and_potential_remedial_measures.pdf)

Cluster 4 – Hastings and Alton Avenue from Queen St E to Stanton Avenue

[http://www.toronto.ca/involved/projects/basement\\_flooding/pdf/2010-09-29\\_sa32/2010-09-29\\_cluster\\_4\\_causes\\_of\\_flooding\\_and\\_potential\\_remedial\\_measures.pdf](http://www.toronto.ca/involved/projects/basement_flooding/pdf/2010-09-29_sa32/2010-09-29_cluster_4_causes_of_flooding_and_potential_remedial_measures.pdf)

Cluster 5 – Area bounded by Pape Avenue (W), Jones Avenue (E), Eastern Avenue (S) and Austin Avenue (N)

[http://www.toronto.ca/involved/projects/basement\\_flooding/pdf/2010-09-29\\_sa32/2010-09-29\\_cluster\\_5\\_causes\\_of\\_flooding\\_and\\_potential\\_remedial\\_measures.pdf](http://www.toronto.ca/involved/projects/basement_flooding/pdf/2010-09-29_sa32/2010-09-29_cluster_5_causes_of_flooding_and_potential_remedial_measures.pdf)

Cluster 6 – Queen St. East and Logan Avenue area

[http://www.toronto.ca/involved/projects/basement\\_flooding/pdf/2010-09-29\\_sa32/2010-09-29\\_cluster\\_6\\_causes\\_of\\_flooding\\_and\\_potential\\_remedial\\_measures.pdf](http://www.toronto.ca/involved/projects/basement_flooding/pdf/2010-09-29_sa32/2010-09-29_cluster_6_causes_of_flooding_and_potential_remedial_measures.pdf)

Cluster 7 – First Avenue – west of Logan Ave.

[http://www.toronto.ca/involved/projects/basement\\_flooding/pdf/2010-09-29\\_sa32/2010-09-29\\_cluster\\_7\\_causes\\_of\\_flooding\\_and\\_potential\\_remedial\\_measures.pdf](http://www.toronto.ca/involved/projects/basement_flooding/pdf/2010-09-29_sa32/2010-09-29_cluster_7_causes_of_flooding_and_potential_remedial_measures.pdf)

Cluster 8 – Playter Blvd.

[http://www.toronto.ca/involved/projects/basement\\_flooding/pdf/2010-09-29\\_sa32/2010-09-29\\_cluster\\_8\\_causes\\_of\\_flooding\\_and\\_potential\\_remedial\\_measures.pdf](http://www.toronto.ca/involved/projects/basement_flooding/pdf/2010-09-29_sa32/2010-09-29_cluster_8_causes_of_flooding_and_potential_remedial_measures.pdf)

Cluster 9 – Kingswood Road

[http://www.toronto.ca/involved/projects/basement\\_flooding/pdf/2010-09-29\\_sa32/2010-09-29\\_cluster\\_9\\_causes\\_of\\_flooding\\_and\\_potential\\_remedial\\_measures.pdf](http://www.toronto.ca/involved/projects/basement_flooding/pdf/2010-09-29_sa32/2010-09-29_cluster_9_causes_of_flooding_and_potential_remedial_measures.pdf)

## The Development and Evaluation of Solutions

Flood mitigation and protection measures have been developed according to the standards outlined in the aforementioned Basement Flooding Work Plan approved by Council in 2006. In addition to the upgrading of sewer capacity, other measures include eliminating the sources of inflow and infiltration (I/I) entering the sanitary sewers (e.g. through roof leaders, foundation drains, porous maintenance holes covers, cracked or broken maintenance holes and pipes, and open pipe joints and connections), implementing inlet controls on roadside catchbasins to prevent excessive flows from entering the storm and combined sewers, and diversion of overland flows to eliminate severe street ponding.

The evaluation of long-term flood mitigation solutions has been underway since late 2010 and a preliminary preferred solution is currently being finalized for presentation to the public at the next round of public meetings, expected to be held in Spring 2011. Potential solutions that have been evaluated include source control measures (e.g. roof downspout disconnection, catchbasin inlet control, increasing or decreasing the number of catchbasins, replacing porous maintenance hole covers with solid covers, etc.), sewer rehabilitation and/or replacement, pumping station upgrades, new storm sewers in streets with combined sewers, curb and road re-grades for overland flow diversion, and surface or underground storage tanks, among others.

### Interim Measures

While the environmental study for the evaluation of long-term remediation measures and the selection of a preferred solution has been underway, Toronto Water has also been examining the feasibility of implementing various interim measures to address flooding which could be implemented in the near-term.

### Public Consultation

This study is being conducted according to the Municipal Class Environmental Assessment (EA) Schedule 'B' process, which includes the completion of Phase 1 (Problem or Opportunity) and Phase 2 (Alternative Solutions) up to and including the Notice of Completion and 30-day review period. The first round of Public Information Centres (PICs) was held on September 29 and 30, 2010 to present the long list of flood mitigation alternatives to the public. The second round of PICs is being planned for Spring 2011 to present the final long term mitigation measures to the public. Notification of the PICs will be advertised in the local community newspaper and notices will be delivered to local residents.

### Kippendavie Development Proposal – 66 and 76 Kippendavie Avenue

In 2009, a low rise condominium consisting of 65 units was proposed at #66-76 Kippendavie Avenue in the Eastern Beaches area. Residents are concerned that the proposed development can worsen the flooding problems in the immediate area.

The consultant for the developer submitted a functional servicing report in 2010 to the City presenting the proposed plans for stormwater management for the control of storm runoff from the development, and to provide water, storm and sanitary sewer services. Toronto Water reviewed the proposed storm, sanitary, and stormwater management plans and requested, in April 2010, that additional analysis be undertaken.

The City received a revised functional servicing report in January 2011 from the engineering consultant for the developer. This report is currently being reviewed to ensure that the proposed servicing plans meet the City's Wet Weather Flow Management and sewer design standards, and that there are no negative impacts on existing storm and sanitary sewer services and existing flooding problems.

The rezoning application under the Planning Act for 66 and 76 Kippendavie Avenue is currently under review through the City's planning approvals process.

## **CONTACT**

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## **SIGNATURE**

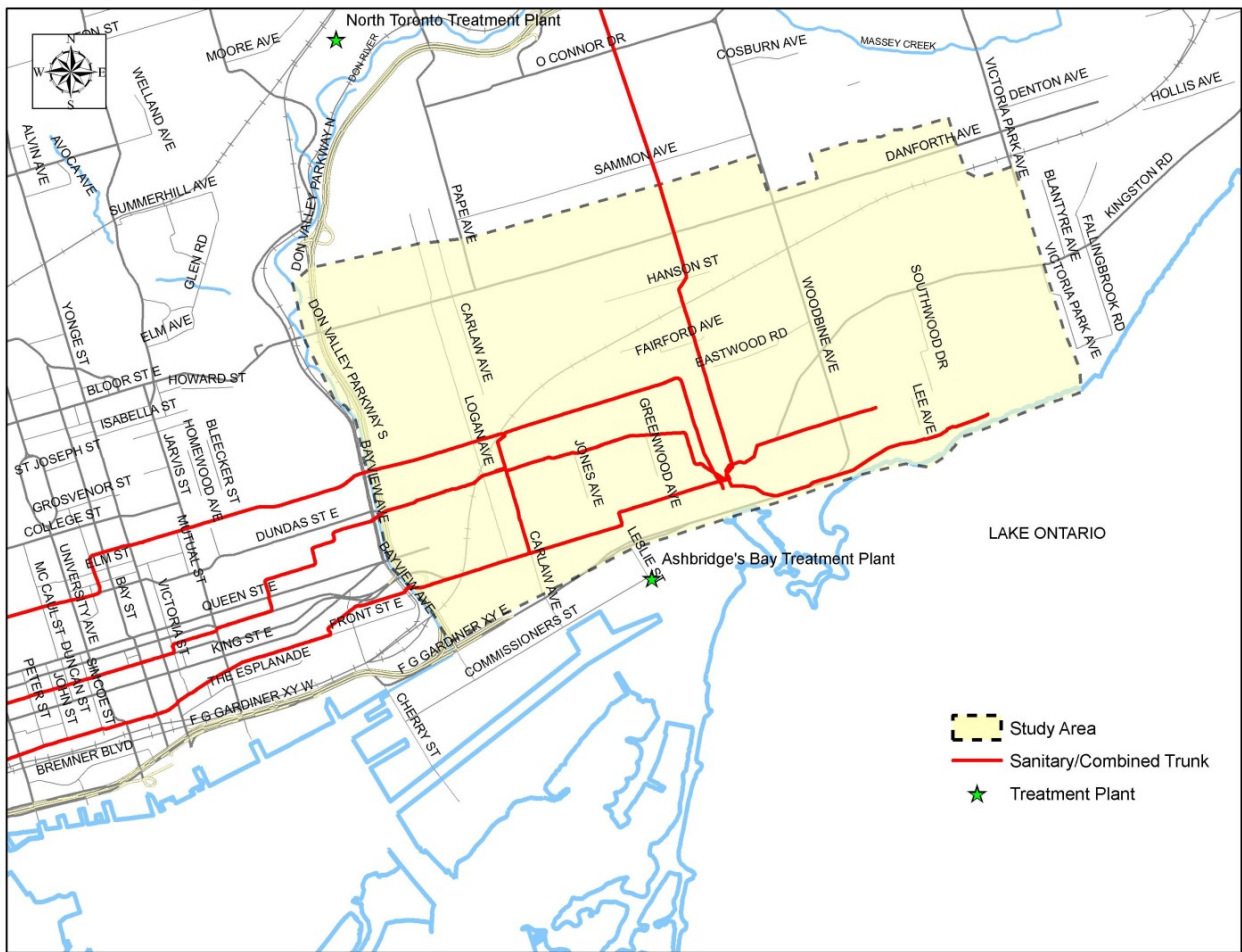
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## **ATTACHMENTS**

1. Map of Study Area
2. Map of Flooding Cluster Areas

# Attachment 1 - Map of Study Area





# Attachment 2 – Map of Flooding Cluster Areas

